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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/588,511

08/04/2006

Lothar Seidemann

294162US0PCT

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10/09/2009

OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER

SEIFU, LESSANEWORK T

ART UNIT

PAPER NUMBER

1797

NOTIFICATION DATE

DELIVERY MODE

10/09/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/588,511	Applicant(s) SEIDEMANN ET AL.	
	Examiner Lessanework Seifu	Art Unit 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 July 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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4. Claims 1-9 and 13-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abekawa et al. (US 5,908,607) in view of Komakine (US 4,499,944) and Itoh et al. (US 5,112,593).

Regarding claims 1-9 and 13-19, Abekawa et al. disclose a process and apparatus for producing chlorine by gas-phase oxidation of hydrogen chloride with oxygen in the presence of a heterogeneous catalyst (see col. 6, lines 60-64). Abekawa et al. disclose that the process for producing chlorine in accordance to their invention can be carried out in a fluidized bed reactor (see col. 6, lines 61-64). Abekawa et al. are, however, silent as to the specific configuration of the fluidized bed reactor.

Komakine discloses an apparatus for carrying out chemical reaction in a fluidized bed (see Abstract). Komakine discloses that the apparatus for carrying out chemical reaction in the fluidized bed comprises: a vessel (3) for containing a fluidized bed (6) (see Figs. 1 and 2); a plurality of heat transfer plates (7) having openings (21) for breaking up large gas bubbles (see Fig. 3 and col. 3, lines 26-43). Komakine discloses that the heat transfer plates are connected in a thermally conductive manner to a heat exchanger (see Fig. 3 and Abstract). Komakine further discloses that the heat exchanger has tubes which run horizontally in the fluidized bed and are connected to the heat transfer plates (7). Komakine further discloses that the horizontal tubes connect vertical heat exchanger tubes of a shell-and-tube heat exchanger (see col. 3, lines 60-68 and Figs. 4 and 5). Komakine further discloses that the heat transfer tubes run through the heat transfer plates (see Fig. 3). Komakine further discloses that the reactor comprises a windbox and a perforated plate (4) for use as a gas distributor (see

Fig. 1). Komakine, however, does not disclose the heat transfer plates being located transverse to the flow direction of gas through the fluidized bed.

Itoh et al. disclose a fluidized bed reactor for preparation of chlorine (see Abstract). Itoh et al. discloses that the fluidized bed reactor can be provided with a plurality of gas-permeable plates (see Abstract and Fig. 1). Itoh et al. further disclose that the plurality of gas-permeable plates is located transverse to the flow direction of gas through the fluidized bed reactor (see Fig. 1 and col. 5, lines 10-30). Itoh et al. further disclose that the gas-permeable plates have individual openings within the range as claimed (see col. 4, lines 7-10). Itoh et al. further disclose that the gas-permeable plates can have spacing within the range as claimed (see col. 4, lines 30-41).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the teachings of Abekawa et al., Komakine, and Itoh et al. and modified the fluidized bed reactor of Komakine to provide a fluidized bed reactor comprising a heat exchanger and gas-permeable plates arranged in configuration as claimed because Abekawa et al. suggests incorporating cooling means in the fluidized bed reactor to maintain the reaction temperature within a desired range (see col. 6, line 65 to col. 7, line 2) and Itoh et al. disclose that it is advantageous to provide a plurality of perforated plates in the fluidized bed reactor, wherein the plurality of perforated plates is arranged transverse to the flow direction of gas through the fluidized bed (see col. 2, lines 20-36).

It also would have been obvious to one having ordinary skill in the art at the time the invention was made to construct the interior walls of the reactor, gas-permeable

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plates, heat exchanger surfaces, interior walls of the windbox and the gas distributor of Komakine from nickel alloys, because Itoh et al. discloses that it is desirable to use a metallic material (nickel alloys) whose iron content is not higher than 1 wt% as the construction material of a fluidized bed reactor utilized for the production of chlorine by oxidizing hydrogen chloride (see col. 3, lines 41-49 and claim 1).

It also would have been obvious to one having ordinary skill in the art at the time the invention was made to construct the gas distributor of Komakine from ceramic because, Itoh et al. discloses that the gas distributor plate can be made of any material, including ceramic, which can finely divide and diffuse gaseous mixture of hydrogen chloride and oxygen (see col. 3, lines 49-51 and col. 5, lines 21-26).

The recited limitation in claim 1 regarding the thermal conductivity of the gas-permeable plate being greater than the thermal conductivity of the fluidized bed has no patentable weight. The broadest reasonable interpretation of a fluidized bed is a solid-fluid mixture which behaves as a fluid. Thus, the thermal conductivity of a fluidized bed is a property which is dependent on the particular fluid and the particular solid material selected to form the fluidized bed. The selection of the particular fluid and the solid material to form the fluidized bed is a process limitation and not a structural or functional limitation to the apparatus claim. Process limitations do not have patentable weight in an apparatus claim. See *Ex parte Thibault*, 164 USPQ 666,667 (Bd. App. 1969) that states "Expressions relating the apparatus to contents thereof and to an intended operation are of no significance in determining patentability of the apparatus claim."

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5. Claims 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abekawa et al. (US 5,908,607), Komakine (US 4,499,944) and Itoh et al. (US 5,112,593) as applied to claim 8 above, and further in view of Erisman (US 3,708,887).

Regarding claims 10-12, the claims depend from claim 8 such that the reasoning applied to claim 8 above is applied herein for the dependent portions of the claims. The reference Abekawa et al., Komakine, and Itoh et al. are silent with respect to the gas distributor for the fluidized bed reactor comprising gas distributor nozzles and an impingement device. Erisman discloses a gas distributor plate provided with gas distributor nozzles for a fluidized bed vessel (see Abstract and col. 2, lines 1-16). Erisman discloses that the nozzles are provided with cap member for controlling the flow of a fluidizing gas (see Fig. 4). It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the gas distribution plate of Komakine in configuration as disclosed in the reference Erisman for the purpose of controlling the flow of a fluidizing gas.

Response to Amendment

Applicant's amendment to the claims, filed on July 9, 2009, has overcome the rejection of claims 1-16 under 35 U.S.C. § 112, second paragraph. Therefore, the rejection made in the previous Office Action under 35 U.S.C. § 112, second paragraph, has been withdrawn.

Applicant's amendment to claim 16 has overcome the rejection of claim 16 under 35 U.S.C. § 101. Therefore, the rejection made in the previous Office Action under 35 U.S.C. § 101 has been withdrawn.

Response to Arguments

6. Applicant's arguments, see Remarks, filed on July 7, 2009, with respect to the rejection(s) of claim(s) 1, 6, and 13 under 35 U.S.C. § 102(b) as being anticipated by Georgian have been fully considered and are persuasive. Therefore, the rejection has been withdrawn.

7. Applicant's arguments with respect to the claims over the references Slinko and Komakine have been considered but are moot in view of the new ground(s) of rejection.

8. Applicants state that it is not proper to ignore the recited limitation in claim 1 that the thermal conductivity of the gas-permeable plates is greater than the thermal conductivity of the fluidized bed (see Remarks page 3, 5th paragraph). The examiner respectfully disagrees. As stated herein and the previous Office action, the broadest reasonable interpretation of a fluidized bed is a solid-fluid mixture which behaves as a fluid. Thus, the thermal conductivity of a fluidized bed is a property which is dependent on the particular fluid and the particular solid material selected to form the fluidized bed. For the above reason, it is proper to interpret the limitation recited in claim 1 regarding the relative thermal conductivity properties as a process limitation.

Conclusion

9. The prior art made of record, Georgian (US 2,893,851), in the Office action dated March 31, 2009, but not listed on Notice of References Cited in the previous Office action has been cited on a supplemental Notice of References Cited form enclosed (Form PTO-892).

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lessanework Seifu whose telephone number is (571)270-3153. The examiner can normally be reached on Mon-Thr 9:00am-6:30pm; Fri 9:00am-1:00pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Walter Griffin can be reached on 571-272-1447. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/L. S./
Examiner, Art Unit 1797

/Walter D. Griffin/
Supervisory Patent Examiner, Art Unit 1797